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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/598,033

08/16/2006

Changling Liu

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9375

441 7590 10/14/2009

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EXAMINER

ZAREK, PAUL E

ART UNIT

PAPER NUMBER

1628

MAIL DATE

DELIVERY MODE

10/14/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/598,033	<b>Applicant(s)</b> LIU ET AL.	
	<b>Examiner</b> Paul Zarek	<b>Art Unit</b> 1617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 August 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 19-25 is/are pending in the application.
- 4a) Of the above claim(s) 22 and 23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 19-21, 24, 25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                      |                                                                   |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____                                                          | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08/10/2009 has been entered.

### ***Status of the Claims***

2. Claims 19-25 have been added and Claims 1-18 have been cancelled by the Applicants in correspondence filed on 08/10/2009. Claims 19-25 are currently pending. Claims 22 and 23, drawn to a method of controlling fungi and insects in a plant, are drawn to a nonelected invention and are withdrawn from consideration. Claims 24 and 25 are drawn to product-by-process claims in which the product is of the same scope as the compounds of formula (I) claimed in Claim 19. Examiner respectfully notes that Applicants' are in error by asserting that newly added Claims 24 and 25 correspond to Claims 8 and 9 as originally filed (and canceled in correspondence filed on 02/06/2009). Examiner believes newly added Claim 24 and 25 correspond to original Claim 6, drawn to a method of making compounds of formula (I). Thus, Claims 19-21, 24 and 25 are examined herein. This is the first Office Action on the merits of the claim(s) following the request for continued examination.

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### RESPONSE TO ARGUMENTS

3. Claims 10-15 were rejected under 35 U.S.C. 103(a) as being unpatentable over Desbordes, et al. (International Application No. WO99/33812, 1999). This rejection is moot in light of Applicants' cancellation of Claims 10-15.

4. Newly added Claims 19-22, 24, and 25 are examined on their merits and the following **NON-FINAL** rejection is made.

#### *Claim Rejections - 35 USC § 103*

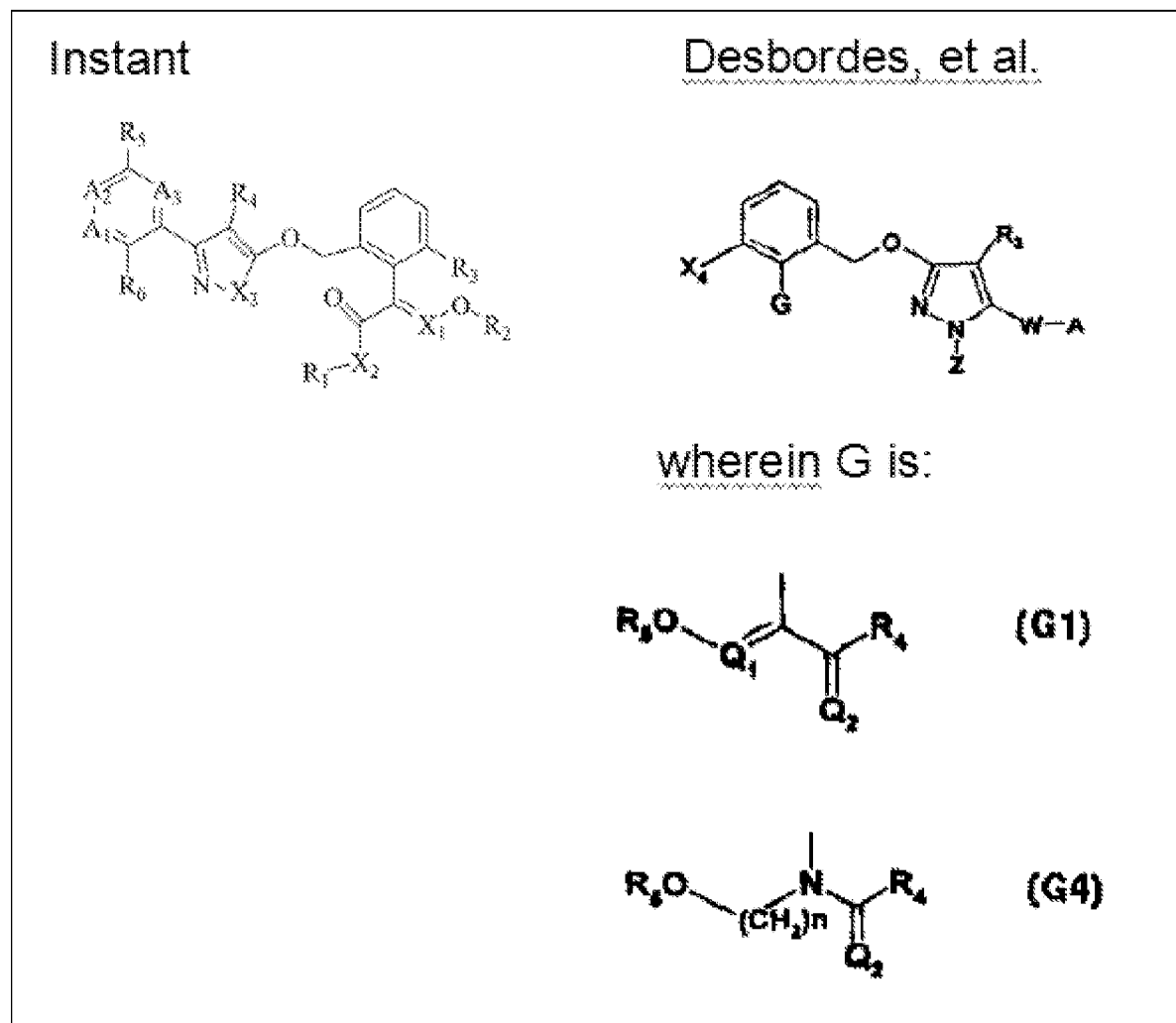
5. The text of Title 35, U.S.C. § 103 not included in this action can be found in a prior Office action.

6. Claims 19-22, 24, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Desbordes, et al. (International Application No. WO99/33812, 1999, already of record).

7. Newly added Claim 19 is drawn to a substituted azole compound of formula (I) comprising the substituents A<sub>1</sub>, A<sub>2</sub>, A<sub>3</sub>, R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, R<sub>6</sub>, R<sub>9</sub>, R<sub>10</sub>, R<sub>11</sub>, X<sub>1</sub>, X<sub>2</sub>, and X<sub>3</sub>. Claim 20 further limits the identities of the above-mentioned substituents. Compound 2 is the elected species, wherein R<sub>1</sub> and R<sub>2</sub> are -CH<sub>3</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, and R<sub>6</sub> is -H, X<sub>1</sub> is -CH-, X<sub>2</sub> is =O, X<sub>3</sub> is -NCH<sub>3</sub>, A<sub>1</sub> and A<sub>3</sub> are -CH-, and A<sub>2</sub> is -CCl. Claim 22 is drawn to a composition comprising the azole compound of formula I as an active ingredient wherein the weight percentage of the active ingredient is from 0.1% to 99%. Claims 24 and 25 are drawn to a product-by-process in which the product is a compound of formula (I).

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8. Desbordes, et al., teach numerous substituted azole compositions which possess fungicidal abilities (abstract). Although Desbordes, et al., does not teach the specific species elected by Applicant, it teaches numerous compounds that individually and as a group render the elected species obvious. The generic formulae are shown below:



Precisely how the compounds of Desbordes, et al., render the instantly claimed *prima facie* obvious have been discussed in detail in Office Actions mailed on 11/07/2008 and 04/08/2009. Briefly, Desbordes, et al., disclose numerous compounds (i.e. 50, 65, 70, 73, 88, 100, and 103) which differ from the instantly claimed compounds by being positional isomers and utilizing

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bioisosteric equivalents (i.e. -Cl for -F). Positional isomers are expected to possess similar properties. *In re Wilder*, 563 F.2d 457, 195 USPQ 426 (CCPA 1977) (MPEP §2144.09(II)).

King (Medical Chemistry: Principles and Practice, 1994, already of record) discusses bioisosteres.

9. Applicants traversed this rejection on the grounds that: 1) the instantly claimed compounds are unexpectedly superior to those disclosed in Desbordes, et al.; 2) most of the compounds that allegedly render obvious the instantly claimed compounds of formula (I) are not effective anti-fungal compounds; and, 3) there is no motivation for the skilled artisan to modify the compounds disclosed in Desbordes, et al., to generate the instantly claimed compounds (e.g. no motivation to select any of compounds 50, 65, 70, 73, 88, 100, and 103 as the “lead” compound). Examiner respectfully disagrees.

10. Applicants interpret the omission of compounds in examples B1-B7 as indicative that these compounds are not effective at all in treating fungal infestations on various plants. Examiner disagrees with this interpretation. Desbordes, et al., disclose compounds that remove at least 75% of the fungus from plants at after a 24 hour treatment of specific concentrations of the tested compounds (e.g. 40 ppm, 5 ppm, or 2.5 ppm). Given the similarity among the compounds disclosed by Desbordes, et al., it is reasonable to assume that all or most of the compounds taught therein had anti-fungal activity, but not at the threshold of a greater than 75% reduction after 24 hours of a given dose (40 ppm., 5 ppm, or 2.5 ppm) of the tested compounds. Thus, there is no compelling reason to doubt the general teaching of Desbordes, et al., that the compounds disclosed therein possess antifungal properties.

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11. Examiner notes that Example 11 of the instant specification does not disclose that all of the 435 exemplified were 100% effective against the tested fungi. On the basis of the instant disclosure, it would be erroneous for a skilled artisan to conclude that Compound 3, for instance, had no antifungal activity; rather, it would be reasonable to conclude that Compound 3 did possess antifungal activity, but not 100% after 24 hours at a concentration of 500 ppm.

12. Examiner acknowledges Applicants' assertion of unexpected results. However, this assertion is insufficient to overcome the *prima facie* case of obviousness. The concentrations of substances tested in the instant application and Desbordes, et al., are not equivalent (500 ppm, 100 ppm, and 50 ppm in instant application; 40 ppm, 5 ppm, and 2.5 ppm in Desbordes, et al.). "Evidence of unobvious or unexpected advantageous properties, such as superiority in a property the claimed compound shares with the prior art, can rebut *prima facie* obviousness. 'Evidence that a compound is unexpectedly superior in one of a spectrum of common properties . . . can be enough to rebut a *prima facie* case of obviousness.' No set number of examples of superiority is required. *In re Chupp*, 816 F.2d 643, 646, 2 USPQ2d 1437, 1439 (Fed. Cir. 1987) (Evidence showing that the claimed herbicidal compound was more effective than the closest prior art compound in controlling quackgrass and yellow nutsedge weeds in corn and soybean crops was sufficient to overcome the rejection under 35 U.S.C. 103, even though the specification indicated the claimed compound was an average performer on crops other than corn and soybean.)." (MPEP § 716.02(a)(II)). Applicants must establish the unexpected results. "The evidence relied \*>upon< should establish 'that the differences in results are in fact unexpected and unobvious and of both statistical and practical significance.' *Ex parte Gelles*, 22 USPQ2d 1318, 1319 (Bd. Pat. App. & Inter. 1992) (Mere conclusions in appellants' brief that the claimed polymer had an

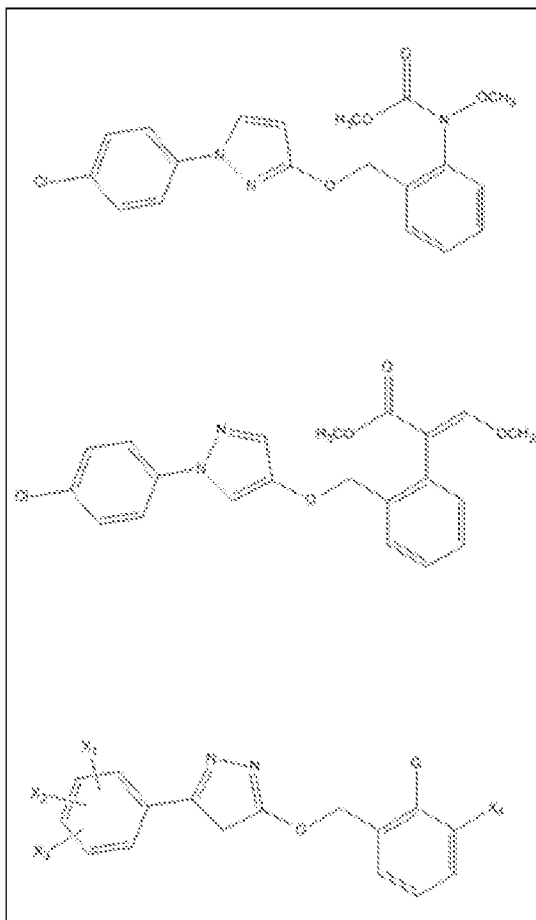
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unexpectedly increased impact strength ‘are not entitled to the weight of conclusions accompanying the evidence, either in the specification or in a declaration.’)” (MPEP § 716.02(b)(I)). The most persuasive evidence would be side-by-side comparison of a representative number of the instantly claimed compounds with a sufficient number of compounds of the closest prior art (i.e. Desbordes, et al.) submitted in the form of a declaration or affidavit (MPEP § 716.02(g)).

13. Examiner also disagrees with Applicants’ assertion that one of ordinary skill in the art would not look at compound 73 as a lead compound to modify to attain the instantly claimed compounds of formula (I). Applicants cite *Proctor & Gamble Co. v. Teva Pharmaceuticals*, in which the Federal Circuit held that a position 3 isomer was not obvious over a position 2 isomer. The fact pattern of this case is not directly relevant to the instant application. In *Proctor*, an expert witness testified that “each bisphosphonate [the compound at issue] has to be considered on its own. To infer from one compound the effects in another is dangerous and can be misleading.” In the instant application, it was well known that a pyrazole ring with a phenyl moiety on one side and a methoxyphenyl methoxyacrylate moiety on the other side possessed fungicidal activity. This is summarized in the background section of the instant disclosure, and cites US and foreign patent documents that exist as prior art to the instant application.



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Each of the known antifungal compounds comprise a pyrazole center and the substituents are rotated around to different positions while the resultant molecule retains its antifungal properties. Thus, one of ordinary skill in the art would readily recognize that positional isomers can be made without expecting a decrease in fungicidal activity. The MPEP clearly indicates that positional isomers are *prima facie* obvious over each other (MPEP §2144.09(II)), and the state of the art at the time of filing support this finding that positional isomers, with respect to pyrazole-containing fungicides, are obvious variants of each other. The skilled artisan would be motivated to select compound 73 of Desbordes, et al., or compounds 38 and 39, which are also closely related to the instantly claimed compounds of formula (I) due to the fact that these compounds are closely

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related to the instantly claimed compounds and they demonstrate greater than 75% fungal reduction on plants.

14. Claims 24 and 25 are drawn to product-by-process. “[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.’ *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted)” (MPEP § 2113). As discussed above, Desbordes, et al., renders compounds of formula (I) *prima facie* obvious. Thus Claims 24 and 25 are *prima facie* obvious over Desbordes, et al.

### ***Conclusion***

15. Claims 19-21, 24, and 25 are rejected.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Zarek whose telephone number is (571) 270-5754. The examiner can normally be reached on Monday-Thursday, 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Brendon Fetterolf can be reached on (571) 272-2919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PEZ

/San-ming Hui/  
Primary Examiner, Art Unit 1628